



News

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Cadillac XLR-V: Supercharged, High-Performance Roadster

- **Supercharged 4.4L V-8 Northstar with variable valve timing**
- **Acceleration 0-100 km/h (0-62 mph) in less than five seconds**
- **Luxury, power, performance, personal amenities and style**

FRANKFURT – The Cadillac XLR-V, which has been available in Cadillac showrooms across Europe since April, is a further addition to the luxury nameplate's growing family of high-performance V-Series vehicles. The XLR-V combines luxury with power, performance, personal amenities and style and is equipped with the Northstar V-8 supercharged engine, producing 331 kW (450 hp). Combined with a rear-mounted, six-speed automatic transmission, the XLR-V's supercharged engine helps deliver 0-100 km/h (0-62 mph) acceleration in 4.7 seconds.

Measuring a compact 4.51 meters by 1.84 meters, the XLR-V is based on the iconic Evoq concept car that redefined the perception of Cadillac around the world. The Cadillac XLR-V offers the combination of distinctively bold styling with contemporary luxury, ingenious technologies, rear wheel-drive and near 50/50 weight distribution for enhanced balance and vehicle dynamics – on an advanced performance level.

As with all members of the V-Series family, exterior and interior appointments clearly set this two-seater apart. These include the signature wire mesh grille, 19-inch wheels at all four corners, along with ebony wood and aluminum accents throughout the interior. Chassis refinements enable equal surefootedness and driver appeal on the street or the track, including larger brakes, stabilizer bars, wheels and tires, plus a performance-calibrated Magnetic Ride Control (MR) system.

Supercharged Northstar engine

At the heart of the XLR-V is the 4.4L version of the Northstar engine fitted with an intercooled, positive-displacement supercharger. The dual overhead cam (DOHC) V-8 engine, called the Northstar V-8 SC (supercharged), produces 331 kW (450 hp) at 6,400 rpm and 561 Nm of torque at 3,900 rpm – the engine's performance is reinforced by its ability to deliver 90 percent of its peak torque between 2,200 and 6,000 rpm.

The supercharged Northstar V-8 generates 124 horsepower (91 kW) more than its naturally aspirated counterpart and its specific output of over 100-horsepower-per-liter makes it one of the world's highest specific output production V-8 engines. However, the Northstar V-8 SC used in the XLR-V delivers more than just top-end power.

The DOHC engine includes variable valve timing that provides outstanding top-end performance while maintaining the expected refinement and quality associated with a luxury marque. The aggressive torque curve enabled by the choice of a supercharged engine gives the XLR-V a torque level 138 Nm higher than the normally aspirated V-8, enabling acceleration firmly in the “under-five-second-club” for 0-100 km/h (0-62 mph) – a signature capability of V-Series vehicles.

Air induction and exhaust

The air induction system on the XLR-V was designed to address packaging needs created by the large engine and the supercharger. These modifications increased the flow of air to the engine by 30 percent, funneling it from the front air intake over the radiator and to the supercharger via two ducts, which converge into one prior to reaching the supercharger, so that only one mass air flow sensor is required.

The system was designed to be as free-flowing as possible, bringing in the maximum amount of air to the supercharger. Each duct has been carefully tuned to minimize supercharger whine and resonance in order to achieve the most pleasing intake sound quality. The exhaust system features a unique muffler design, which effectively combines the construction of a more conventional muffler with a high-performance flow-through design.

To keep sound levels at a pleasant, throaty pitch during everyday driving on streets and expressways, the exhaust is routed through a series of internal chambers that muffle sound levels. During more aggressive driving, a vacuum-actuated Pierburg valve in the muffler opens to allow straight exhaust flow-through. There are perforations in the pipe to allow dissipation into the other muffler chambers, but the overall effect is to reduce backpressure and increase power.

Six-speed automatic transmission

The Northstar V-8 SC is mated to the Hydra-Matic 6L80 six-speed automatic transmission – the first use of GM’s new six-speed automatic in a rear-mounted configuration. The 6L80 uses clutch-to-clutch operation and an advanced, integrated 32-bit transmission controller to deliver smooth and precise shifts. In addition, a wide 6.04:1 overall ratio spread enhances performance and fuel economy.

The 6L80 also incorporates a host of advanced driving enhancement features, including advanced Performance Algorithm Shifting (PAS), Performance Algorithm Lifffoot (PAL) and Driver Shift Control (DSC). PAS lets the electronic transmission controller override the automatic gear selection during closed-throttle, high-lateral-acceleration maneuvers, rapidly downshifting with the release of the torque converter clutch for smooth powering up when the throttle is reopened. PAL minimizes transmission upshifts during closed throttle driving and cornering to maintain the correct gear and alleviate “busyness.” Driver Shift Control allows the driver to sequentially shift gears manually via the gearshift lever.

The refined shift feel is enabled by careful electronic calibration of both the engine and transmission. During shifts, power is instantaneously lowered, then ramped back up carefully to make gear changes virtually unnoticeable.

Performance-tuned chassis systems

Chassis modifications on the XLR-V include larger brakes, recalibrated Magnetic Ride Control (MR); larger front stabilizer bar and the addition of a rear stabilizer bar, stiffer rear lower control arm bushings, larger wheels and tires, a power steering fluid cooler and a higher-capacity fuel pump.

The most noticeable change was made in the braking system to assure strong stopping power and smooth, confident brake operation, given the increased power and handling capabilities of the XLR-V. To achieve this, chassis engineers turned to J55 brakes, essentially the same application used in the Z51 Corvette, with larger cross-drilled rotors and high-performance brake linings. Front rotors are 340 mm in diameter; rear rotors are 330 mm. The thickness of the rotor cheeks on both the front and rear has been increased for added thermal capacity. The brake system incorporates dual-piston front calipers and single-piston rear calipers.

Magnetic Ride Control on the XLR-V has been recalibrated to account for the enhanced handling characteristics the roadster's supercharged performance demands. The system seeks to keep the body on an even plane at all times, giving drivers a comfortable ride by dramatically reducing disturbances to the vehicle body. The MR recalibration – combined with a stiffer front stabilizer bar, the addition of a rear stabilizer bar, and stiffer rear control arm bushings – subtly changes the driving characteristics of the XLR-V when compared to the standard XLR. Another V-Series staple is a four-channel/four-selection mode chassis control system (StabiliTrak), enabling the driver to switch between four stability settings, including a "less-governed" performance mode for the performance enthusiast.

Wheels and tires have been increased in size for enhanced sure-footedness, to 235/45R19 on the front and 255/40R19 at the rear. The tires are Pirelli run-flats.

Cooling strategies for high performance

To meet the increased demands of the XLR-V powertrain and power steering systems, a number of enhancements were made in the cooling systems to assure the vehicle can realize its full performance potential while meeting all the expectations for refinement and sophistication expected in an ultra-luxury roadster. These enhancements include:

- Auxiliary engine oil cooler
- Auxiliary transmission oil cooler
- Large auxiliary cooler inlet and outlet openings
- Dedicated supercharger radiator
- Power steering fluid cooler, which consists of a tube wrapped with wire bristles, giving it an appearance similar to a hairbrush. Unlike more traditional finned coolers, the bristle design allows air to flow through the cooler from all directions, creating more efficient and effective cooling
- Louvers have been added in the wheel liners behind the auxiliary coolers to exit air from the coolers and to help improve brake cooling.

V-Series styling modifications

Styling modifications have imparted a more aggressive character to the XLR-V in keeping with its enhanced performance capabilities, while retaining an aura of refined elegance. Exterior and interior design refinements include:

- Polished wire mesh upper and lower front grilles, a V-Series signature
- Aggressively sculpted dome hood, marking the XLR-V as a supercharged-powerhouse
- Ten-spoke aluminum wheel design with sterling silver finish
- Unique V-Series and Supercharged badges that subtly proclaim the XLR-V's pedigree, including "XLR-V" and "Supercharged" badges on the front fenders, doors and deck lid
- Four polished stainless steel exhaust tips
- Black finish brake calipers with machined V-Series logo
- Zingana wood, an ebony-hued wood with a distinctive grain, is used on the shifter knob, cup holder area, newly designed steering wheel and on portions of the door and center console
- The upper portion of the interior is Ebony with either Shale or Ebony as the dominant lower color, maintaining a sense of quiet, restrained elegance
- Ebony leather with French stitching wraps interior components throughout, from the top of the instrument panel, and roll hoops to the door trim, arm rests, center console and steering wheel
- The soft leather seats with French stitching are either all-Ebony or Shale, with matching perforated suede fabric inserts on the seats and door-panel accent trim
- Aluminum accent pieces throughout the interior, from the sill plates to the center stack trim plate surrounding the radio and steering wheel accents, are in a new Kinetic pattern
- V-Series badges highlight the instrument cluster and passenger side dash.

The XLR-V is built at GM's state-of-the-art, award-winning Bowling Green, Kentucky, USA assembly center.

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